

AMENDMENTS TO THE SPECIFICATION

Replace the entire text of the SUMMARY OF THE INVENTION beginning on page 3 of the specification with the following:

A vehicle occupant support apparatus is provided for installation in a vehicle seat. The apparatus comprises an array of air cells including expandable chambers and a control module. The control module has an input connectable to a fluid supply system and includes only enough outputs to connect respective cells of a portion of the array to the fluid supply system via the control module. This allows the array of air cells to be conformed to any one of a plurality of different vehicle types by connecting to the limited number of outputs only those cells that are appropriate or intended for use in a given vehicle type.

According to another aspect of the invention the apparatus comprises an array of air cells including expandable chambers and a control module for connecting the air cells to a fluid supply system. The control module includes a controller, a pump, and a wiring harness connected to the controller. The controller is selected from among a plurality of different function controllers configured to operate the occupant support apparatus according to different respective user preferences. This allows different function controllers to be selected and installed to provide different types of control for the array.

According to another aspect of the invention the control module is programmed to have target pressures attained by using a programmed time of inflation or deflation of the expandable chambers as established by desired program sequences of operation by the control module. This type of automatic control of the air cell pressures eliminates the need for a feedback function such as the use of pressure transducers for indicating full inflation or deflation of the air cells.

According to another aspect of the invention the valves are provided and the control module is programmed to have a programmed time of inflation or deflation established by sequentially activating the valves individually and energizing the pump for predetermined periods, and varying the number and location of the expandable chambers pressurized producing localized pressures exerted on a supported member. This feature allows for a greater variety of uses.

According to another aspect of the invention the apparatus includes a pressure source and an exhaust system configured to provide a pneumatically controlled support surface for the seating or body support system. Also, the massage movement includes a sequence of inflate and deflate between the respective expandable chambers so as to provide concentrated massage while maintaining a directional movement of the expandable chambers producing the massage action.

According to another aspect of the invention the expandable chambers are provided as a series of expandable chambers and more than one user selected massage type is provided. Also provided is a preprogrammed manner of individual expandable chamber inflation and deflation to produce either a pulse type control of individual expandable chambers in both inflate and deflate steps through the series of expandable chambers so as to produce the aforesaid concentrated massage action.

According to another aspect of the invention the apparatus includes an inflate switch and a deflate switch and the control sequence is initiated by signals from the inflate and deflate switches to the controller. Also, a manual inflate or deflate control is established by inputting the controller with input signals from manual operation of the inflate or deflate switches. The controller is preprogrammed to provide a timed inflate and exhaust of the expandable chambers.

According to another aspect of the invention the apparatus includes a lower lumbar expandable chamber, an upper lumbar expandable chamber and a middle expandable chamber. The pressure source and exhaust system are controlled by an automatic controller controlled sequence of massage. The sequence of massage includes fully inflating the lower lumbar expandable chamber; then transferring the air from such lower lumbar expandable chamber to the upper lumbar expandable chamber and then to the middle or third expandable chamber and following such inflation deflating each of the multiple expandable chambers from the upper expandable chamber down to the lower expandable chamber and repeating the aforesaid automatic massage for a timed period.

According to another aspect of the invention the switches are configured to stop the automatic massage action when depressed for a predetermined period of time.

According to another aspect of the invention the apparatus includes sensors and other switches and a controller operative in response to multiple input signals. The input signals that the controller responds to include one or more of an occupant detection condition; a temperature condition; system power-up; on-off switch and a system override switch.

According to another aspect of the invention the apparatus includes a pressurized manifold and dual valves disposed between the pressurized manifold and the one or more expandable chambers. The valves are configured to control air flow from a supply manifold or to exhaust the one or more expandable chambers.

According to another aspect of the invention the pressure source includes a pump supplying the manifold. The pump is operable during exhaust from the one or more expandable chambers to back pressure the manifold.

According to another aspect of the invention the apparatus includes at least first second and third expandable chambers. Also, the controller is configured to provide a massage sequence including deflating all of the expandable chambers, connecting the pressurized manifold to the first expandable chamber, deflating the first expandable chamber while inflating the second expandable chamber, deflating the second expandable chamber while inflating the third expandable chamber, deflating the third expandable chamber while inflating the second expandable chamber and deflating the second expandable chamber, and repeating the aforesaid massage sequence.

According to another aspect of the invention the apparatus includes at least first second and third expandable chambers and the controller is configured to provide a massage sequence including deflating all of the expandable chambers, connecting the pressurized manifold to the first expandable chamber to inflate the first expandable chamber, deflating the first expandable chamber while inflating the second expandable chamber, deflating the second expandable chamber while inflating the third expandable chamber deflating the third expandable chamber and repeating the aforesaid massage sequence.

According to another aspect of the invention the control module includes a controller and a pump and the occupant support apparatus includes hoses connected at one end to respective individual expandable chambers of the array and connectable at respective opposite ends to the control module.

According to another aspect of the invention a method is provided for customizing a vehicle occupant support apparatus to suit a particular vehicle application. The method includes providing a vehicle occupant support apparatus including an array of air cells including expandable chambers configured to be carried by a vehicle seat, a controller connected to the air cells, and a fluid supply system connectable to the air cells

through the controller; selecting from among the air cells of the array, those air cells suited to a desired vehicle seat application; and disconnecting all but the selected air cells from the controller. According to this method, an array of air cells can be conformed to any one of a plurality of different vehicle types by disconnecting from the controller all but those cells that are appropriate or intended for use in a given vehicle type.

According to another aspect of the invention a method is provided for customizing a vehicle occupant support apparatus to suit a particular vehicle application. The method includes providing a vehicle occupant support apparatus including an array of air cells including expandable chambers configured to be carried by a vehicle seat, a controller connectable to the air cells, and a fluid supply system connectable to the air cells through the controller; selecting from among the air cells of the array, those air cells suited to a desired vehicle application; and connecting the selected air cells to the controller. According to this method, an array of air cells can be conformed to any one of a plurality of different vehicle types by connecting to the controller only those cells that are appropriate or intended for use in a given vehicle type.

Replace the first paragraph on page 10 with the following amended paragraph:

The seat system indicated by reference numeral 112 in Figure 8, includes lumbar air cells 114, 116 and a seat air cell 117 for supporting the iliac region of a user. The pressure in air cells 114, 116 and 117 is controlled by control module 110 when connected thereto for providing touring comfort operation as might be desired in an SUV. The control module 110 is connected by tubing or hoses 110a to the air cells and includes a pump 110b and a wiring harness 110c that will be connected to a single controller [control module] 110d or if the system is fully modularized to one of a plurality of